Subject: Math Grade: 8th Unit #: 2 Title: Moving Straight Ahead

UNIT OVERVIEW

<table>
<tr><th colspan="3">STAGE ONE: Identify Desired Results</th></tr>
<tr><td rowspan="3">Established Goals/ Standards</td><td>7.RP.A.2, 2a, 2b, 2c, 2d
7.EE.A.1
7.EE.A.2
7.EE.B.3
7.EE.B.4, 4a, 4b
8,EE.C.7
8,F.A.3
8.F.B.4
8.F.B.5</td><td>Long-Term Transfer Goal

At the end of this unit, students will use what they have learned to independently…understand linear equations; recognize linear relationships by the constant rate of change between two variables in a contextual situation, a table, a graph, or an equation.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td></td><td></td></tr>
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		Enduring Understandings *Students will understand that…* *1.0 There are multiple representation of a constant rate?* *1.1 You can determine the relationship between the time and the distance walked at a constant rate. You can identify the dependent and independent variables. In an equation the dependent (the distance you walk) and independent variables (the time) are represented by* ***Distance = constant rate (Time) + initial value (which is often zero)*** *1.2 You can predict whether a relationship is linear from a table, a graph and an equation.* *1.3 You can determine the pattern of change in a linear relationship.* *1.4 You can determine whether a linear relationship is increasing or decreasing.* *2.1 There are times when it is more helpful to use a graph verse a table to solve a problem, and vice versa.* *2.2 There is a pattern of change for a linear relationship appear in a table, a graph or an equation.* *2.3 You decide if a table, graph or an equation represents a linear relationship.* *2.4 You can explain how solutions of an equation of the form y = b + mx are related to the graph and the table for the same relationship.*	Essential Questions *Students will consider such questions as…* ● *How can multiple representation be used to model linear functions?* ● *What are the defining characteristics of linear relations?* ● *How can equations be solved by manipulating symbols?*

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		4.1 You can determine how the steepness of a set of stairs is related to a straight-line graph. *4.2 You can find the y-intercept and the slope of a line from data in a table, graph, or equation.* *4.3 You can predict if two line are parallel or perpendicular from their equations.* *4.4 You can determine what information is needed to write an equation for a linear relationship.* *You can explain if the expression for the dependent variable is always the same.*	
		Acquisition	

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		What knowledge will students learn as part of this unit? Students will know... *How to find the constant (rate of change / slope) from an equation a graph and a table.* *How to determine if a set a data points have a linear relationship from a table and if so write an equation for the data points.* *How to match the appropriate table with the corresponding graph and equation.* *How to convert a verbal description of a linear relationship into a table, graph and equation.* *How to explain what information the y-intercept of each line represents.* *How to explain what information the two intersecting linear equations represents.*	***What skills will students learn as part of this unit? Students will be skilled at...*** *Solving equation for x, and showing appropriate work. For equations in the form* *a. 3x + 8 = 35* *b. 12 + 5x = 7x + 3* *c. 3(x + 1) = 12* *Determining which expressions are not equivalent to the others and be able to explain why.For equations in the form* *A. 6(x – 1) + 5* *B. 6x – 1* *C. 6(1 – x) + 5* *D. 5 + 6x – 6*

STAGE TWO: Determine Acceptable Evidence	
	Assessment Evidence
Criteria for to assess understanding: *(This is used to build the scoring tool.)*	Performance Task focused on Transfer: Unit Project: Wasted Water Experiment or Ball Bounce Experiment
	Other Assessment Evidence: • Check points • Partner quizzes • Check ups

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	• Self-assessments • Teacher observations • Unit test Common assessment at the end of the unit

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T, M, A *(Code for Transfer, Meaning Making and Acquisition)*	**STAGE THREE: Plan Learning Experiences**	
	Learning Events: • Investigation 1: Walking Rates (5 days) **1.1 Walking Marathons: Finding and Using Rates (½ day)** **1.2 Walking Rates and Linear Relationships: Tables, Graphs and Equations (½ day)** **1.3 Raising Money: Using Linear Relationships (1 day)** **1.4 Using the Walkathon Money: Recognizing Linear Relationships (1 day)** **Mathematical Reflections (½ day)** Assessment: Check Up 1 **(½ day)** • Investigation 2: Exploring Linear Relationships With Graphs and Tables (4½ days) **2.1 Henri and Emile's Race: Finding the Point of Intersection (½ day)** **2.2 Crossing the Line: Using Tables, Graphs and Equations (½ day)** **2.3 Comparing Costs: Comparing Relationships (½ day)** **2.4 Connecting Tables, Graphs, and Equations (1 day)** **Mathematical Reflections (½ day)** Assessment: Partner Quiz **(1 day)** • Investigation 4: Exploring Slope: Connecting Rates and Ratios (5 days) **4.1 Climbing Stairs: Using Rise and Run (1 day)** **4.2 Finding the Slope of a Line (½ day)** **4.3 Exploring Patterns With Lines (1 day)** **4.4 Pulling It All Together: Writing Equations for Linear Relationships (½ day)**	Evidence of learning: (formative assessment) • Reflection questions • Ace questions • Class work • Student journals • Teacher observations

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	Looking Back **(½ day)** Assessment: Unit Project **(1 day)** Assessment: Unit Test **(1 day)**	

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